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10/591,215	08/30/2006	Thomas J. Adamo	6050.005.001	7889

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LEVISOHN, BERGER, LLP  
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NEW YORK, NY 10004

EXAMINER
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GEBRIEL, SELAM T

ART UNIT	PAPER NUMBER
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2622

NOTIFICATION DATE	DELIVERY MODE
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11/04/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 10/18/2010 have been fully considered but they are not persuasive.
2. On page 6 of applicant remark, applicant argued, "Neither Tangen nor Hoshuyma teach or suggest the limitation of Nanoscale".
3. The examiner respectfully disagrees for the following reason, the word nanoscale is not defined to be anything but a camera of  $10^{-9}$  scale. Tangen discloses a micro camera; a micro camera can be a camera of  $0.001 \times 10^{-9}$  scales which is a nanoscale.

Tangen also disclose a nano -imaging apparatus (Figure 1a,1b, 2a – 2c , 3a and 3b) comprising multiple optical elements of sub-micron (Figure 1b Micro lenses  $L_1 - L_4$ ) supported onto a partly or fully radiation transmitting layer (Figure 2a - 2c, Col 9 lines 24 - 28, the lenses are supported onto a curved transparent substrate S), which in turn is situated on top of a radiation sensitive layer (Figure 2a – 2c Backplane P) being patterned so that under each of said optical elements (Figure 1b Micro lenses  $L_1 - L_4$ ) there exists at least more than one radiation harvesting element (Figure 1b Detectors  $D_1 - D_4$ ) that may be individually affected by radiation (Col 9 Lines 24 – 28, "The optically active structures or the lenslets L may be provided as in FIGS. 2a-2c, where FIG. 2a shows lenses L on a curved transparent substrate S and assigned detectors  $D_n$  provided on the backside of the substrate such that they register with the lenses L"). Tangen does not disclose a nano-imaging apparatus comprising optical elements in a nanometer scale having more than one pixel per optical element. In the same field of

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endeavor Hoshuyama discloses on Col 5 Lines 12 – 23 and Figure 4 a top plan view of the color separation unit of the solid-state image sensor shown in FIG. 1. As shown in the drawing, the microlens 11 has such size as to cover the three light receiving surfaces 16 to 18. **The microlens 11 condenses the whole light, which is applied to the three light receiving surfaces 16 to 18 in ordinary cases, to the opening 12 provided in the first light receiving surface 16.** Therefore, since the microlens 11 condenses light, which irradiates the three light receiving surfaces 16 to 18, to the opening 12, photon utilization efficiency does not decrease even though only the single opening 12 is provided per the three light receiving surfaces 16 to 18 (Col 5 Lines 12 – 23, a nanometer optical element is not described in the claims to mean anything else but an optical element having more than one pixel, Hoshuyama disclose plurality of pixels corresponding to one micro lens therefore it will meet the language of the limitation). Therefore it would have been obvious to one ordinary skilled in art at the time the invention was made to reduce the micro-camera of Tangen to nano level as taught by Hoshuyama. The motivation to reduce the size of the camera is to be able reduce the camera to a point that it can be used with many applications without sacrificing image quality and to decrease the density of the substrate and to reduce the effective optical index.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SELAM GEBRIEL whose telephone number is (571)270-1652. The examiner can normally be reached on Monday - Friday 8:30 - 5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/SELAM GEBRIEL/  
Examiner, Art Unit 2622**

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